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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
BANGACHON, WILLIAM L

ART UNIT	PAPER NUMBER
2635	

DATE MAILED: 06/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/474,660	LANSFORD ET AL.	
	Examiner	Art Unit	
	William Bangachon	2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,7,8,10,12-22 and 24-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7,8,10,12-22 and 24-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 6/4/03 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/474660 is acceptable and a CPA has been established. An action on the CPA follows.

Drawings

2. The formal drawings were received on 6/4/03. These drawings are acceptable.

Response to Amendment

3. Claims 3, 5, and 6 had already been cancelled. Additional claims 4, 9, 11, and 23 are cancelled as indicated.

Response to Arguments

4. Applicant's arguments (page 9, last paragraph) with respect to claims 1, 10, 17, 22, and 26 have been considered but are moot in view of the new ground(s) of rejection.

5. Further applicant's arguments have been fully considered but they are not persuasive.

Applicant's arguments with regards to claims 1, 10, 17, 22, and 26 (page 5, 1st paragraph and page 10, 2nd paragraph) are not persuasive. The claim limitation "a

contention free period" is broad. Smith teaches a frequency-hopping radio communication system wherein a control unit (analogous to the claimed first device) assigns different frequencies and time slots to a plurality of slave stations (analogous to the claimed second and third device) to ensure that none of the stations use the same frequency and time slot for transmission to and reception from the control unit. Clearly, this is analogous to defining "a contention free period" between the plurality of stations, otherwise, interference may result {see summary of invention}. The claimed "outside of a contention free period" is analogous to a first frequency / time slot assigned to a slave station and the claimed "during a contention free period" is analogous to a second frequency / time slot assigned to another slave station. i.e. A first slave station is communicating with the control unit at a first frequency. A second frequency / time slot would therefore be a contention free period. So that when a second slave station need to communicate with the control unit, the second slave station will be assigned the second frequency / time slot. In this case, a third frequency / time slot would be a contention free period in which a third slave station can communicate with the control unit {see claim rejections in the previous Office Action}.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 7-8, 10, 12-14, 16-17, 21-22 and 25-30, are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,850,036 (Smith) {will be referred to as patent 036} in view of US 4,872,205 (Smith) {will be referred to as patent 205}.

With regards to claims 1-2, 9, and 26-30, patent 036 teaches of a method of communicating between electronic devices (100, 170, 140) as shown in figure 1 (see whole document) comprising:

operating a first device/control module 100 (CM) at a first hopping frequency (SF0) during a first period of time (T0) and at a second hopping frequency (SF1) during a second period of time (T1) as shown in the table of figure 5;

operating a second device/station transceiver 170 (S1) at the first hopping frequency (SF0), the second device (S1) communicating with the first device (CM) during the first period of time (T0) and outside of a contention-free period/muting interval/non-transition interval {paragraph bridging cols. 9 and 10}. In this case, time T1 is analogous to the contention-free period; and

operating a third device/station transceiver 140 (S2) at the second hopping frequency (SF1), the third device (S2) communicating with the first device during the second period of time (T1) {column 8, lines 41-65} and during a contention-free period (T1 is analogous to the claimed contention-free period). Each device is assigned a unique time slot and frequency (F, F+50, F+K, etc) on which to transmit and receive (as shown in figure 6) to avoid interference among the devices (i.e. S1 to CM operates at F and S2 to CM operates at F+50) {col. 7, lines 23-26}. All slave station (170, 140) transmissions are synchronized to the control unit (100) transmissions, thereby preventing any two stations from concurrently using the same frequencies for either transmitting to or receiving from the control unit (100) {abstract}. No two stations (S1, S2) use the same time slot and frequency at any given time {col. 9, lines 4-20}. Clearly,

either time T0 or T1 can be chosen as the contention-free period because no two stations transmit at a given time at or frequency.

Alternatively, patent 036 does not disclose **"the second device communicating with the first device outside of a contention-free period during a first period of time and first hopping frequency, and the third device communicating with the first device during the contention-free period during a second period of time and second hopping frequency"**. Patent 036 teach of a muting/non-transition interval (analogous to the claimed contention-free period) wherein only data is transmitted during this period and voice is muted for the purpose of combating multipath transmission {patent 036, col. 9, line 64-col. 10, line 3}. The contention-free period (muting/non-transition interval) can be used to time the frequency transitions at the station transceiver 130 (analogous to the second device) {patent 036, col. 10, lines 10-13}. As suggested by patent 205, the first device (100) may transmit using wider pulse width, **different pulse repetition rate, and different modulation type** to signal its existence to the transceiver devices {patent 205, col. 3, lines 55-60}. Clearly, voice can be transmitted separately from data as taught by Patent 036 and Patent 205 suggests different protocols. Patents 036 and 205 are analogous art because they are from the same field of endeavor and are commonly owned {Patent 036, col. 1, lines 8-13; Patent 205, col. 1, lines 8-13}. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art that **the second device communicates with the first device outside of a contention-free period during a first period of time**

and first hopping frequency, and the third device communicates with the first device during the contention-free period during a second period of time and second hopping frequency in Patent 036, wherein a muting interval/non-transition interval is used as a contention-free period that only data is transmitted during this period can be used because the first device may transmit using wider pulse width, different pulse repetition rate, and different modulation type to signal its existence to the transceiver devices, as suggested by Patent 205.

In claims 7 and 8 (refer to figures 3 and 4), sending a signal (303 or 404) from the third device to the first device, the signal requesting communication with the first device; and determining a time frame (304 or 405) for the second period of time in response to receiving the signal and indicating the time frame to the second device. See col. 4, lines 60-65; col. 5, lines 21-35.

Claims 10 and 12-14 recites the claim limitations of claims 1-2 and 7-9 and therefore rejected for the same reasons.

In claims 16, 21-22, and 25, a computer system (figure 1, 100) programmed to implement the method of claim 10.

Claim 17 recites the claim limitations of claims 1-2, 7-9 and 16 and therefore rejected for the same reasons further comprising a transmitter (130) and a processor/CPU (102)

5. Claims 15, 18-20, 24 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,850,036 (Smith) {will be referred to as patent 036} in view of US 4,872,205 (Smith) {will be referred to as patent 205}, and further in view of US 5,241,542 (Nataranjan et al).

In claims 15, 18-20 and 24, Patent 036 does not disclose expressly the first and second devices as a Bluetooth device and a HomeRF device. Nataranjan et al, in the same field of endeavor (see field of invention), teach that multi-access protocol in a wireless link is conventional (background of the invention). Although the devices in the system of Nataranjan et al are handheld or portable computers with wireless communication capabilities, such protocols would include Bluetooth and HomeRF to one of ordinary skill in the art. A multi-access protocol such a Bluetooth and HomeRF would have been obvious in the system of Smith because the system of Smith is capable of both voice or data communications and a variety of communication systems having different operating characteristics can be accommodated (Patent 036, col. 3, lines 18-27). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to have a scheduled multi-access protocol such as Bluetooth and HomeRF in the system of Smith, as evidenced by Nataranjan et al, because the

system of Smith can accommodate a variety of communication systems having different operating characteristics and is capable of both voice or data communications.

Claims 26-30 recites the combination of claims 10-15 and therefore rejected for the same reasons.

6. Claims 1-2, 7-8, 10, 12-22, and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,241,542 (Nataranjan et al) in view of US 5,414,731 (Antunnes et al).

With regards to claims 1-2, 7-8, 10, 12-22, and 24-30, Nataranjan et al, teach of a frequency hopped multi-access protocol comprising of first (26 or 28), second (10 or 14) and third (12 or 16) devices. Figures 8A-8D shows how a contention-free period is allocated to a mobile unit. For instance if the answer to step 84 is NO (figure 8A), the mobile unit goes back to sleep (step 86) and would only turn the its transmitter ON (step 108-110) after sleep duration slots have elapsed. In this case, the claimed contention-free period is analogous to either the duration of time that the mobile station is asleep or the duration of time that the mobile station is transmitting since no two mobile station transmits at the same time. Nataranjan et al does not disclose expressly a synchronized frequency hopped schedule according to the claimed invention. However, these claim limitations would have been obvious in the system of Nataranjan et al, as evidenced by Antunnes et al, to one of ordinary skill in the art. Antunnes et al teach, in

the same field of endeavor, teach of a synchronized frequency hopped schedule in a communication system wherein each controller and transceiver has their own hop clock and hop table. A data interface, which includes commands and procedures for synchronizing the hop clocks and hop tables according to the claimed invention, is defined between the controller and the transceiver as shown in figures 1-6A of Antunnes et al. In particular, figures 2 and 3 shows each time and frequency at which each device (or slave station 130 shown in figure 7) is synchronized when communicating with the master station/controller. **Clearly, this is analogous to the claimed "operating a first device at a first hopping frequency during a first period of time to communicate with a second device, and at a second hopping frequency during a second period of time to communicate with a third device during a contention free period" since each device is synchronized to communicate with the master station at unique time slot and frequency.** Having hop clocks in both the controller and in the radio minimizes the cost of the data communication interface and to ensure that the quality of the hop clock signals is not comprised by noise present on the interface (Antunnes et al, col. 3, lines 29-33). Clearly, this would be beneficial in the system of Nataranjan et al to one of ordinary skill in the art. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to have a synchronized frequency hopped schedule in a communication system wherein each controller and transceiver have their own hop clock and hop table and a data interface which includes commands and procedures for synchronizing the hop clocks and hop tables according to the claimed invention in the system of Nataranjan et al, as

evidenced by Antunnes et al, because having hop clocks in both the controller and in the radio minimizes the cost of the data communication interface and to ensure that the quality of the hop clock signals is not comprised by noise present on the interface.

Examiner Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Bangachon whose telephone number is 703-305-2701. The examiner can normally be reached on 4/4/10.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on 703-305-4704. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9314 for regular and After Final formal communications. The examiner's fax number is 703-746-6071 for informal communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

William L Bangachon
Examiner
Art Unit 2635

June 21, 2003

MICHAEL HORABIK
SUPERVISORY PATENT EXAMINER
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